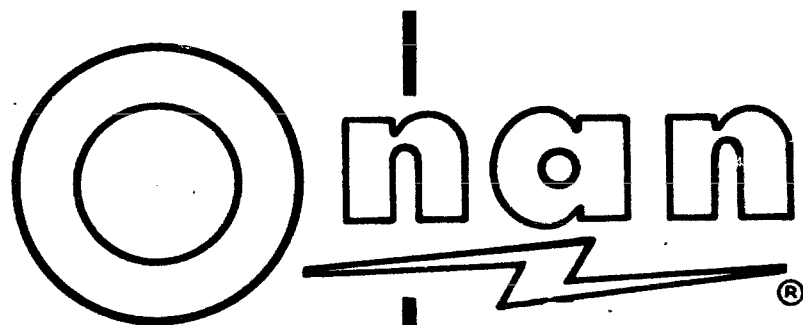


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has gaps in its page
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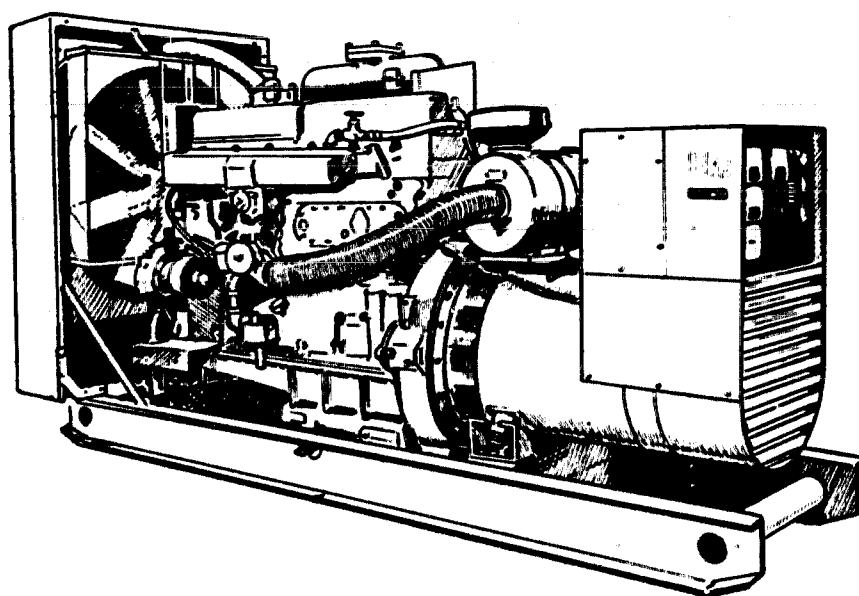
PARTS CATALOG

FOR

WB

SERIES

ELECTRIC GENERATING SETS



PARTS CATALOG

This catalog applies to the WB generator sets listed below. Engine parts modified or added by Onan will be in this list and have Onan part numbers. These supersede similar parts listed in the Waukesha manual. Onan parts are arranged in groups of related items and are identified by a reference. All part illustrations are typical.

ONAN PARTS


All parts in this list are Onan parts. For Onan parts or service, contact the dealer from whom you purchased this equipment or your nearest authorized service station. To avoid errors or delay in filling your order, please refer to the Onan nameplate and give the complete MODEL, SPECIFICATION and SERIAL NUMBER.

MODEL AND SPEC NO.	WATTS	HERTZ
170.0WB-15R/*	170,000	60
170.0WB-9XR/*	170,000	60
140.0WB-515R/*	140,000	50
140.0WB-15R31/*	115,000	60
140.0WB-15R131/*	115,000	60

- * - The Specification Letter advances (A to B, B to C, etc.) with manufacturing changes.

WAUKESHA PARTS

All Waukesha parts must be ordered from the Waukesha Motor Company of Waukesha, Wisconsin, or their nearest authorized distributor. When ordering parts, refer to the Waukesha nameplate and give the complete MODEL, SIZE and SERIAL NUMBER.



ELECTRIC GEN SET

MODEL

SERIAL NO.

IMPORTANT - ALWAYS GIVE ABOVE NOS. WHEN ORDERING PARTS

CONTINUOUS
RATING

HERTZ - 60 RPM - 1800


3 PHASE
 KW KVA

1 PHASE
 KW KVA


VOLTS 120/208/277/220/139/240/120/240/240/416
 AMPS

VOLTS 254/440/277/480/347/600 120/240
 AMPS

BAT. **VOLTS**

MANUFACTURED BY
ONAN
 DIVISION OF ONAN CORPORATION
 MINNEAPOLIS, MINN. 55432, U.S.A.
 FOR ELECT. EQUIPMENT ONLY 

GAS OR GASOLINE ENGINE



MODEL
SIZE

SERIAL
LOT
SPEC

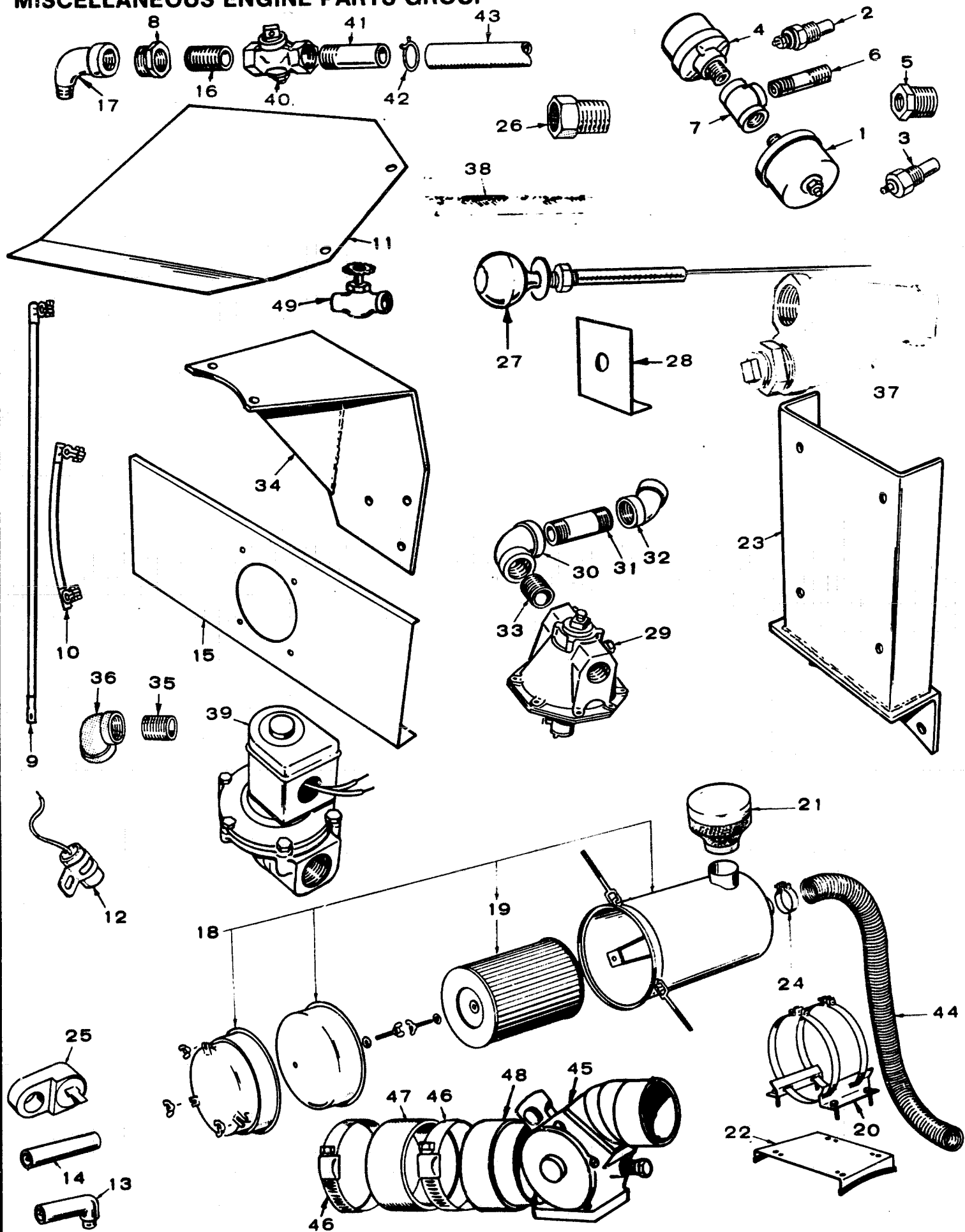
GROSS HP
SET VALVES COLD INT
EXH

OIL SPEC SAE NO. WINTER
SUMMER
SPARE ADV
DEG. AT
R.P.M.

WAUKESHA MOTOR COMPANY
WAUKESHA, WISCONSIN

MADE IN U.S.A.

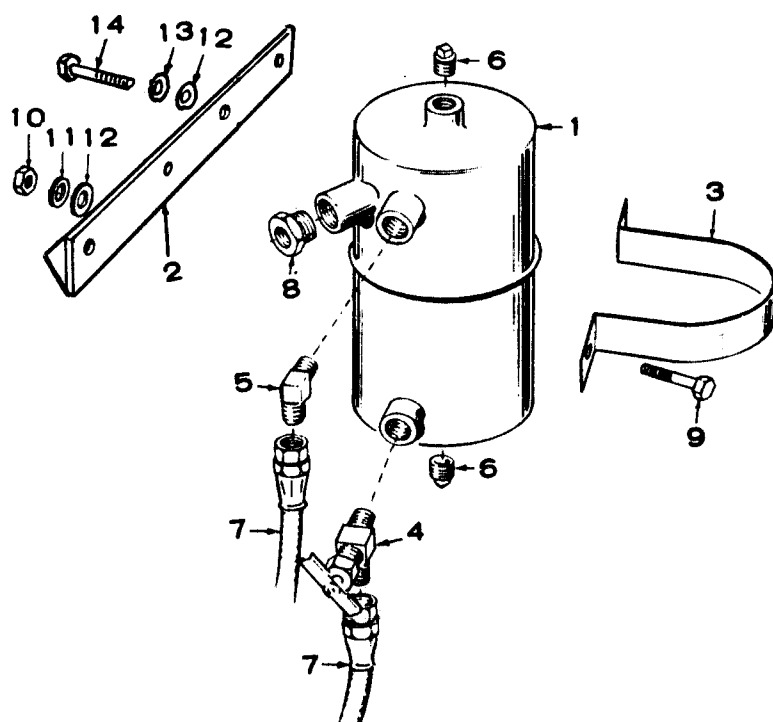
MISCELLANEOUS ENGINE PARTS GROUP



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	193-0108	1	Sender, Oil Pressure Gauge
2	193-0109	1	Sender, Water Temperature Gauge
3	309-0178	1	Switch, High Water Temp.
4	309-0169	1	Switch, Low Oil Pressure
5	505-0117	1	Bushing, Reducer (1/2" x 3/8")
6	505-0098	1	Nipple, Oil Sender and Switch
7	505-0059	1	Tee, Oil Sender and Switch (1/8")
8	505-0498	1	Bushing, Reducer - Oil Drain
9	CABLE, BATTERY		
	416-0444	1	Positive
	416-0445	1	Negative
10	CABLE, BATTERY JUMPER		
	416-0473	1	Begin Spec L
	416-0446	1	Used on Spec H and J
11	133-0160	1	Baffle, Heat - Temperature Cut-Off Switch
12	312-0058	1	Condenser, Ignition Coil
13	314-0156	6	Suppressor, Spark Plug
14	314-0006	1	Suppressor, Coil
15	155-1166	1	Shield, Heat (Housed Sets)
16	505-0100	1	Nipple, Oil Drain (1/2" x 4-1/2")
17	505-0059	1	Elbow, Street (1/2 x 90°)
18	140-1131	1	Cleaner, Air (Includes Element)
19	140-1156	1	Element, Air Cleaner
20	140-1130	1	Clamp, Air Cleaner Mounting
21	140-1132	1	Cap, Air Cleaner
22	140-1125	1	Bracket, Air Cleaner Mtg.
	140-1126	1	Bracket, Air Cleaner Mtg. - (Used with Water Cooled Manifold) Optional
24	503-0622	2	Clamp, Air Cleaner Hose
25	309-0269	1	Switch, Low Engine Temperature - Optional

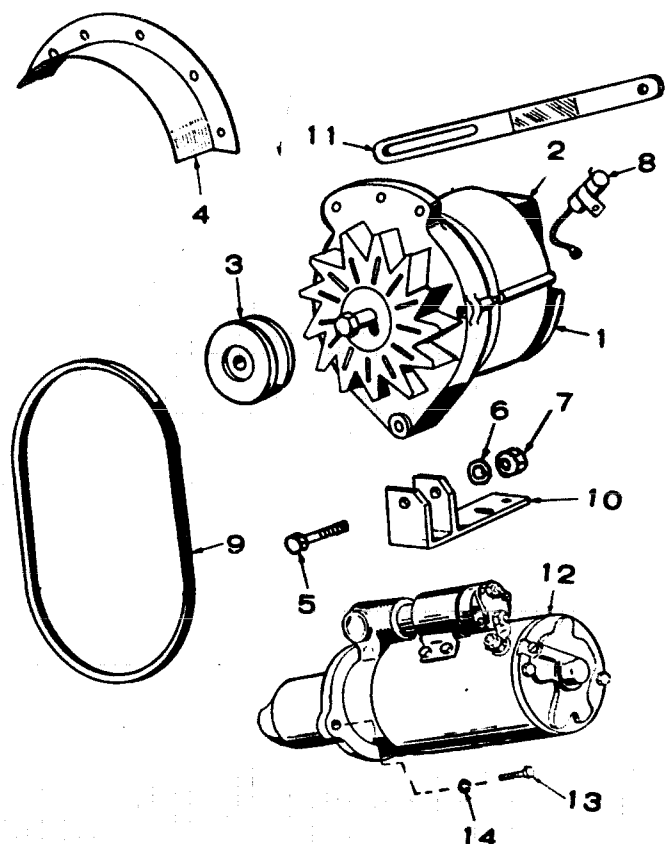
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
26	148-0107	1	Vent, Gas - Carburetor - Gas-Gasoline and LPG - Gasoline Sets
27	152-0120	1	Control, Vernier Throttle - Optional
28	151-0230	1	Bracket, Vernier Throttle Control - Optional
29	REGULATOR, GAS		
	149-0596	1	Natural Gas Sets
	148-0635	1	LPG Fuel Sets
30	505-0042	1	Elbow (1-1/4" x 90°) - Gas Fuel Sets Only
31	505-0258	1	Nipple (1-1/4 x 3") - Gas Fuel Sets Only
32	505-0046	1	Elbow (1-1/4 x 45°) - Gas Fuel Sets Only
33	505-0177	1	Nipple, Close - Gas Fuel Sets Only
34	130-0851	1	Bracket, Heat Exchanger Mtg.
35	505-0164	1	Nipple, Exhaust (4" x Close) - Water Cooled Manifold Units
36	505-0171	1	Elbow, Exhaust (4") - Water Cooled Manifold Units
37	149-0751	1	Strainer, Fuel - Gas
38	503-0273	1	Line, Fuel - Gas
39	307-0841	1	Valve, Solenoid - Gas
40	504-0011	1	Valve, Drain - Oil
41	505-0185	1	Nipple, Half - Oil Drain
42	503-0197	1	Clamp, Hose - Oil Drain
43	503-0316	1	Hose - Oil Drain
44		As Req.	Hose, Air Cleaner (Order 43" of Bulk Hose #503-0620)
45	148-0721	1	Carburetor, Gas - Begin Spec J
46	503-0621	2	Clamp, Hose - Begin Spec J
47	503-0659	1	Hose, Adapter - Begin Spec J
48	148-0724	1	Adapter, Carburetor - Begin Spec J
49	504-0078	2	Valve, Shutoff (Water Filter Lines) - Optional

RESERVOIR TANK GROUP



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	159-0668	1	Tank, Reservoir
2	159-0986	1	Bracket, Tank Mounting
3	159-0871	1	Band, Tank
4	504-0059	1	Valve, Tank Shut-Off
5	502-0183	1	Elbow, Compression Male - Brass
6	505-0057	2	Plug, Pipe - Square Head (1/8)
7	501-0085	2	Line, Fuel - Flexible - (1) Pump to Reservoir Tank, (1) Reservoir Tank to Carburetor
8	159-0705	1	Bushing, Reducer - Restricted
9	800-0005	2	Screw, Cap (1/4-20 x 3/4) - Tank Mounting
10	860-0013	2	Nut, Hex (1/4) - Tank Mtg.
11	850-0040	2	Washer, Lock - Tank Mounting
12	526-0035	2	Washer, Flat - Bracket Mounting
13	850-0060	2	Washer, Lock - Bracket Mtg.
14	800-0090	2	Screw, Cap (1/2-13 x 1") - Bracket Mounting

ALTERNATOR AND STARTER MOTOR GROUP

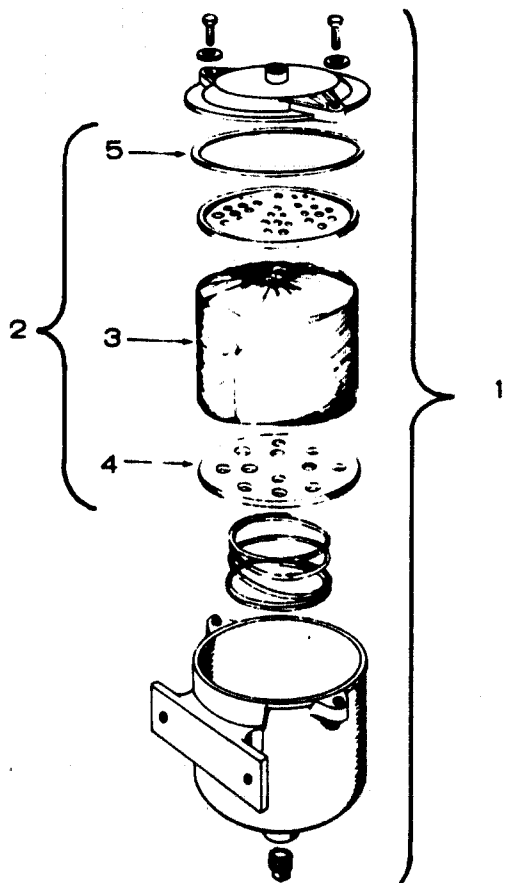


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	191-0688	1	†Alternator, Charge - Includes Regulator and Fan (Motorola #70D44039B04)
2	191-0733	1	Regulator, Alternator
3	191-0649	1	Pulley, Alternator
4	191-0725	1	Guard, Alternator Belt
5	800-0095	1	Screw (1/2-13 x 2-1/4) - Alternator Mounting
6	850-0060	1	Washer, Lock (1/2) - Alternator Mounting
7	862-0016	1	Nut, Hex (1/2) - Alternator Mounting
8	312-0058	1	Condenser, Alternator - 0.1 Mfd.
9	511-0058	1	Belt, Alternator Drive
10	191-0905	1	Bracket, Alternator Mounting
11	191-0869	1	Bracket, Alternator Adjustment
12	191-0852	1	*Motor, Starting (Delco Remy #1113892)
13	800-0133	3	Screw (5/8-11 x 2-1/4") - Starting Mounting
14	850-0070	3	Washer, Lock

* - For components, contact your nearest Delco Remy Dealer or Delco Remy Division of Generator Motors Corporation, Anderson, Indiana 46011.

† - For components, contact your nearest Motorola Dealer or Motorola Automotive Products, Inc., 9401 W. Grand Ave., Franklin Park, Illinois 60131.

WATER FILTER GROUP - OPTIONAL

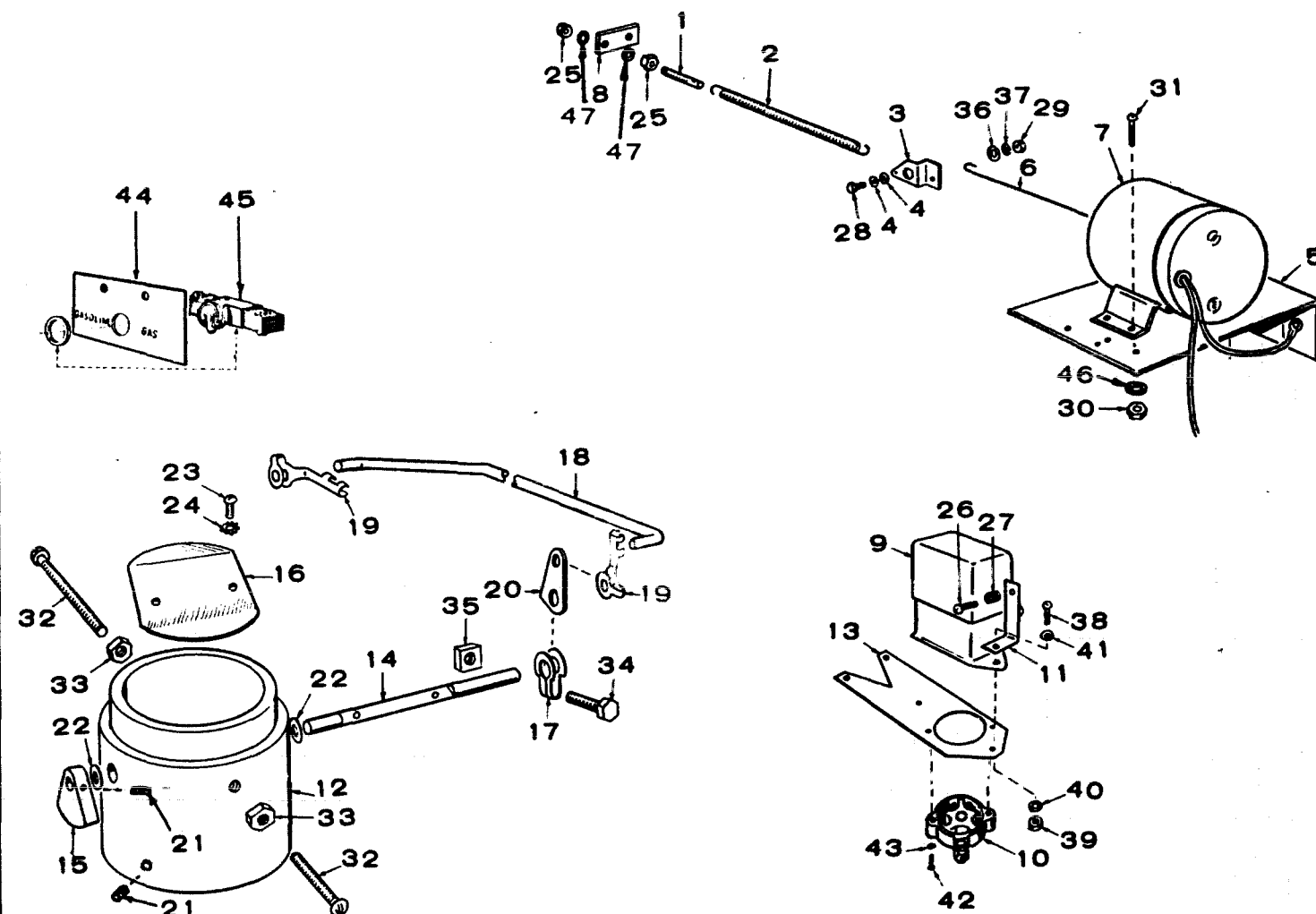


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	130-0497	1	Filter, Water - Complete
2	ELEMENT REPLACEMENT KIT, WATER FILTER		
	130-0771	1	Chromate Element (Includes (Parts Marked *) - Original Equipment
	130-0772	1	All Purpose, Year Around Element (Includes Parts Marked †)
3	ELEMENT, FILTER		
	130-0775	1	*Chromate Element
	130-0776	1	†All Purpose, Year Around
4	130-0780	1	*†Plate, Sacrificial
5	130-0778	1	*†Gasket, Cover

* - Included in #130-0771 Element Replacement Kit.

† - Included in #130-0772 Element Replacement Kit.

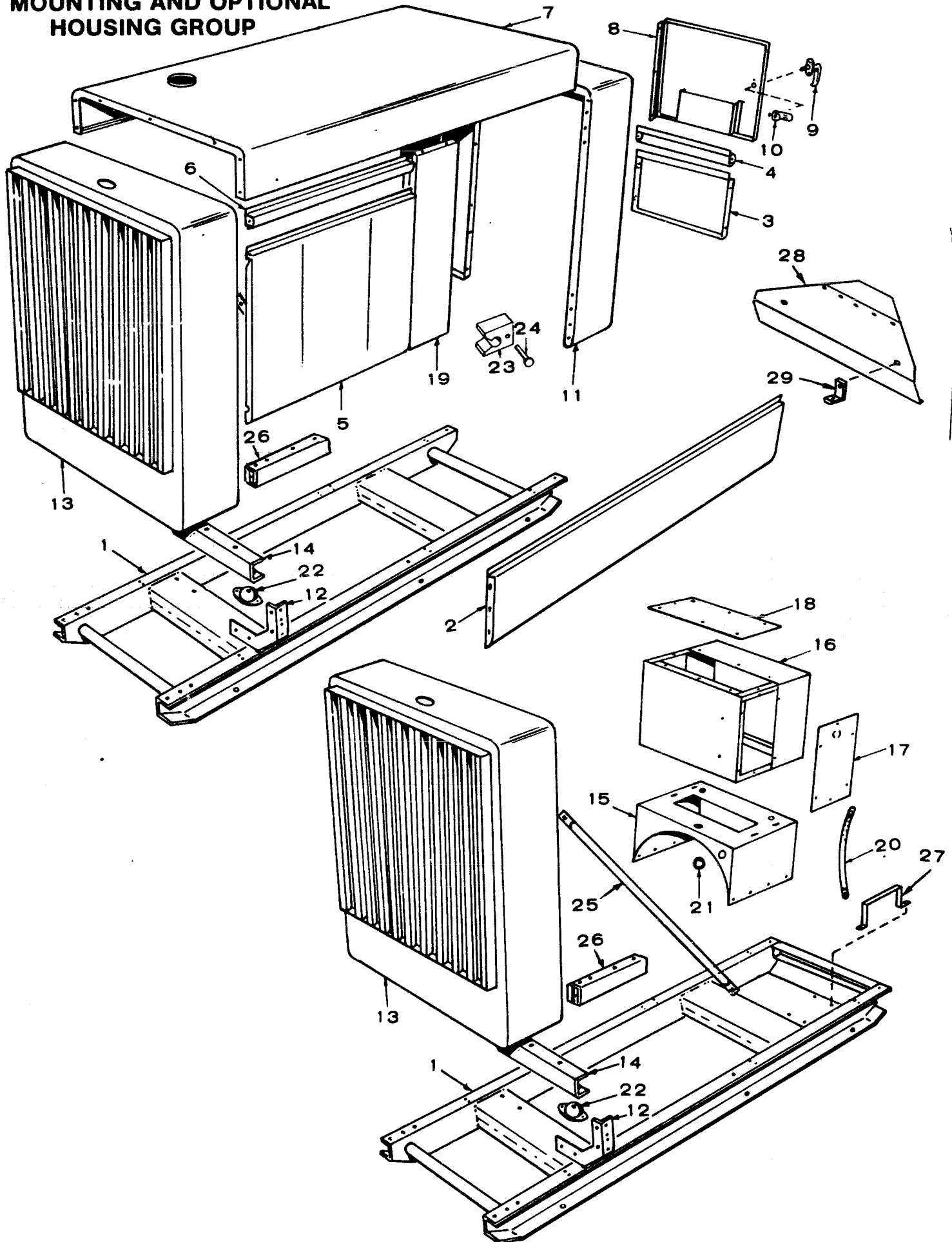
ANTI-DIESELING CONTROL AND CHOKE GROUP — GAS-GASOLINE AND LPG-GASOLINE SETS



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	150-0147	1	Stud, Adjusting
2	145-0158	1	Spring, Throttle
3	145-0435	1	Link, Throttle Spring
4	526-0201	2	Washer, Spacer (7/16" O.D. x 17/64" I.D.)
5	145-0201	1	Bracket, Solenoid Mounting
6	145-0437	1	Link, Solenoid
7	307-1141	1	Solenoid and Lead Assembly
8	145-0343	1	Bracket, Throttle Spring
9	153-0317	1	Choke, Auto. (Sisson)
10	153-0051	1	Cover Assembly, Choke
11	153-0304	1	Arm, Choke Lock
12	153-0446	1	Adapter, Choke
13	153-0305	1	Bracket, Choke Mounting
14	153-0287	1	Shaft, Choke
15	148-0317	1	Counterweight, Choke Shaft
16	153-0288	1	Plate, Choke
17	153-0282	1	Arm, Choke
18	153-0303	1	Rod, Choke
19	518-0047	1	Clip, Rod End
20	153-0283	1	Arm, Choke Over-Ride
21	803-0002	3	Screw, Set - (2) Adapter Mounting (1) Counterweight Mounting
22	508-0007	2	Washer, Choke Shaft Seal
23	812-0059	2	Screw, Choke Plate Mounting
24	853-0003	2	Washer, Choke Plate Mtg.
25	870-0053	2	Nut, Hex (10-32) - Adj. Stud
26	813-0100	1	Screw (10-32 x 1/2) - Choke Lock Arm Mounting

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
27	232-0979	1	Spring, Choke Lock Arm Mounting
28	800-0005	1	Screw (1/4 x 3/4), Throttle Spring Link
29	862-0001	1	Nut, Hex (1/4-20) - Throttle Spring Link
30	860-0008	4	Nut, Hex - Solenoid Mtg.
31	812-0082	4	Screw, Solenoid Mounting
32	SCREW, CHOKE PLATE STOP		
	813-0105	1	10-32 x 1"
	813-0111	1	10-32 x 2-1/4"
33	870-0053	2	Nut, Hex (10-32)
34	815-0178	1	Screw (10-32 x 5/8) - Choke Arm Mounting
35	861-0008	1	Nut, Hex (10-32) - Choke Arm Mounting
36	526-0018	1	Washer, Flat (1/4)
37	850-0040	1	Washer, Lock (1/4)
38	800-0003	2	Screw, Choke Mounting
39	860-0013	2	Nut, Hex
40	850-0040	2	Washer, Lock (1/4)
41	854-0014	1	Washer, Shakeproof
42	812-0082	2	Screw, Choke Cover Mtg.
43	850-0025	2	Washer, Lock
44	308-0150	1	Plate, Switch Mounting
45	308-0068	1	Switch, Toggle
46	854-0007	4	Washer, Lock
47	850-0030	3	Washer, Lock

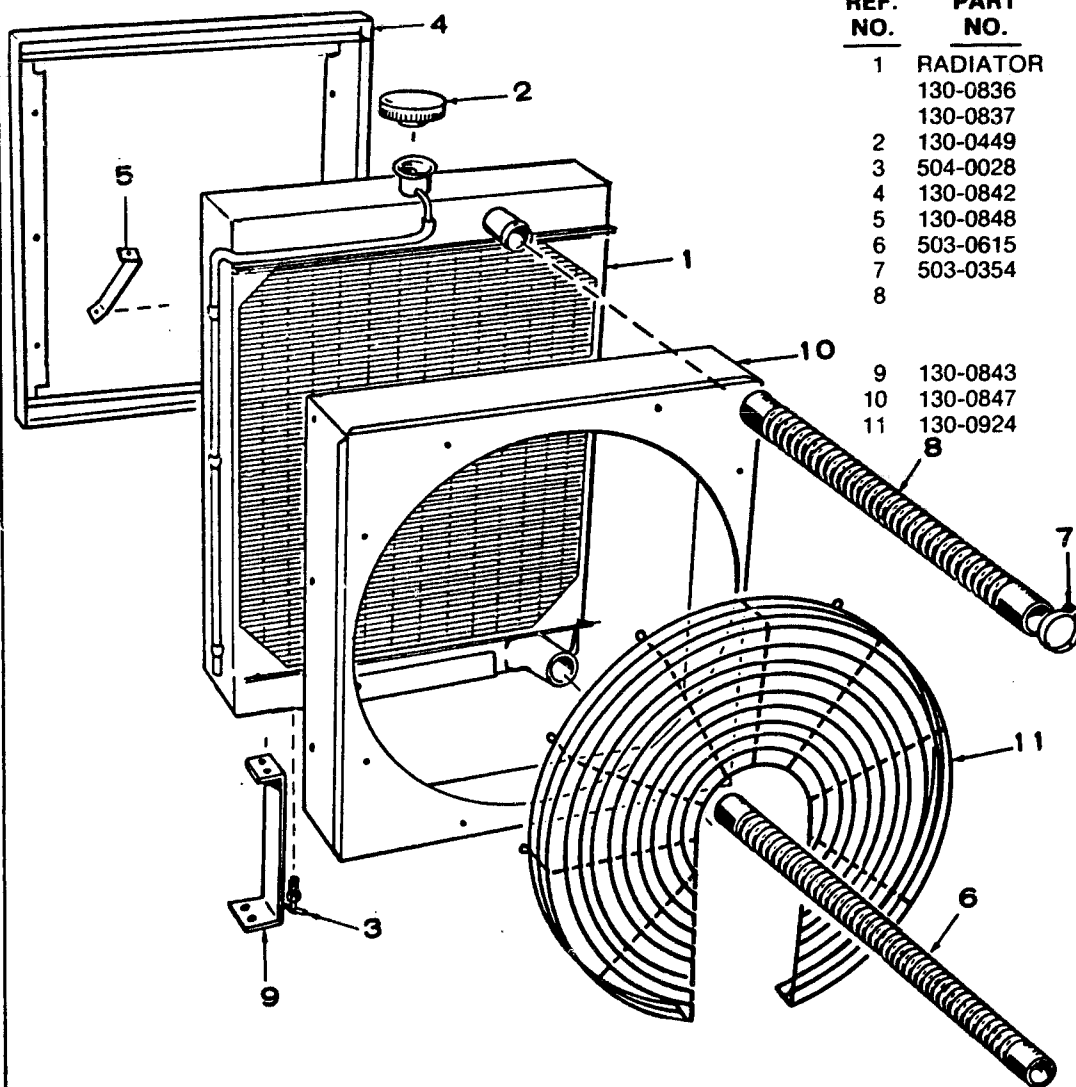
MOUNTING AND OPTIONAL HOUSING GROUP



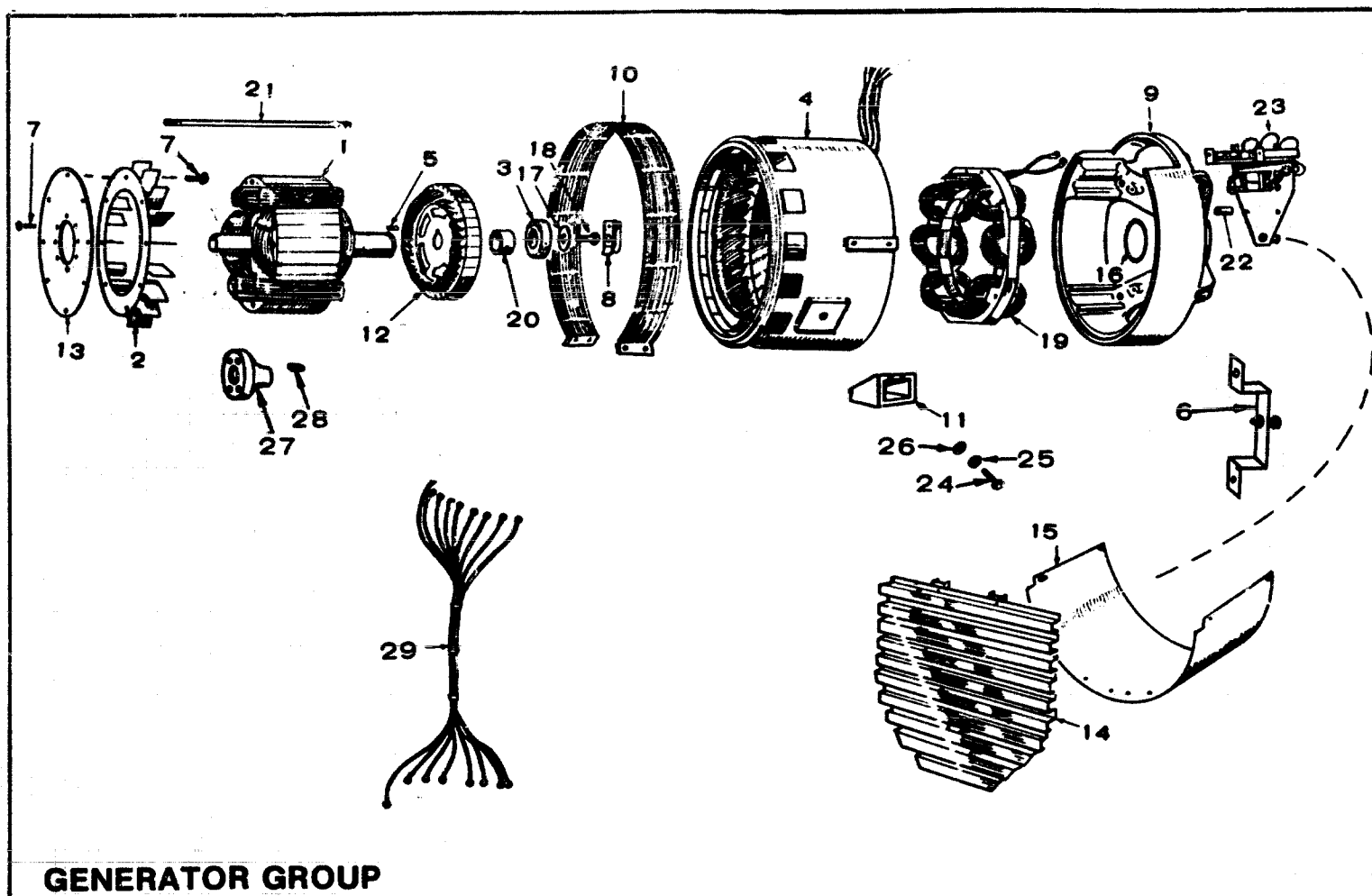
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	BASE, SKID 403-1134	1	Begin Spec L
	403-0965	1	Spec H through J
2	PANEL, LOWER (Housed Sets)		
	405-2165	2	Begin Spec L
	405-1878	2	Spec H through J
3	405-1856	1	Panel, Lower Rear Housing (Housed Sets)
4	405-1858	2	Panel, Rear Lower (Housed Sets)
5	405-1877	4	Panel, Door - Side (Housed Sets)
6	405-1875	8	Panel, Louver (Housed Sets)
7	PANEL, TOP (Housed Sets)		
	405-1920	1	Begin Spec L
	405-1886	1	Spec H through J
8	405-1880	1	Panel, Rear Door (Housed Sets)
9	406-0157	1	Handle, Door (Housed Sets)
10	406-0089	1	Catch, Door (Housed Sets)
11	405-1883	1	Panel, Rear (Housed Sets)
12	BRACKET, PANEL MOUNTING		
	405-2016	2	Unhoused Sets - Begin Spec L
	405-1854	2	Unhoused Sets - Spec H thru J
	405-2016	6	Housed Sets - Begin Spec L
	405-1854	6	Housed Sets - Spec H thru J

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
13	405-1884	1	Panel, Front
14	403-0964	1	Support, Engine Mount
15	301-3154	1	Saddle, Control Box Housing
16	301-3155	1	Housing, Control Box
17	301-3156	2	Panel, Control Box Housing
18	301-3156	1	Panel, Control Box Housing (Top) Unhoused Sets Only
19	405-1873	2	Support, Center Housing (Housed Sets)
20	337-0090	1	Strap, Ground
21	508-0001	1	Grommet, Rubber - Control Box Housing
22	MOUNT, VIBRATION		
	402-0371	2	Engine End
	402-0384	2	Generator End
23	405-1872	16	Clip, Door (Housed Sets)
24	818-0150	16	Rivet, Door Clip Mounting (Housed Sets)
25	405-1888	2	Bracket, Radiator and Shroud Support
26	403-0968	2	Mount, Front Engine
27	416-0635	2	Strap, Battery Hold-down - Begin Spec L
28	155-1193	1	Shield, Heat (Housed Sets)
29	155-1192	2	Bracket, Heat Shield- (Housed Sets) Begin Spec L

COOLING SYSTEM GROUP



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	RADIATOR 130-0836	1	Dry Manifold Units
	130-0837	1	Water Cooled Manifold Units
2	130-0449	1	Cap, Radiator
3	504-0028	1	Valve, Radiator Drain
4	130-0842	1	Shroud, Radiator
5	130-0848	2	Brace, Radiator Support
6	503-0615	1	Hose, Radiator - Lower
7	503-0354	4	Clamp, Hose
8		1	Hose, Radiator - Upper (Order 26" of Bulk Hose #503-0623)
9	130-0843	2	Bracket, Radiator Support
10	130-0847	1	Shroud, Fan
11	130-0924	1	Guard, Fan



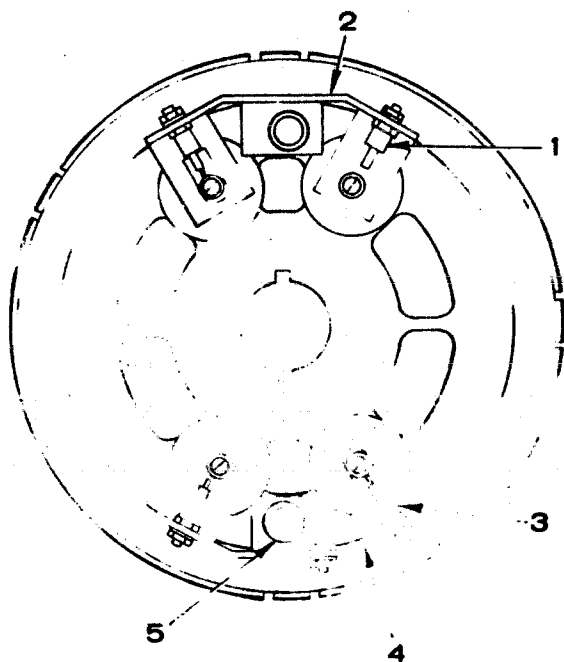
GENERATOR GROUP

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	*	1	Rotor Assembly, Wound - Includes Collector Ring
2	205-0095	1	Blower
3	510-0101	1	Bearing
4	*	1	Stator Assembly, Wound
5	515-0145	1	Key, Exciter Rotor
6	150-1456	1	Bracket and Contact Assy. - Engin Spec L
7	BOLT, PLACE		
	805-0033	8	Drive Disc to Hub
	805-0032	8	Drive Disc to Engine
8	150-0717	1	Switch Assembly, Overspeed
9	211-0185	1	Bell, End
10	234-0368	1	Screen, Generator
11	232-2208	2	Bracket, Generator Mounting
12	201-1739	1	Rotor Assembly, Wound - Exciter - (See Separate Group for Components)
13	232-2037	1	Disc, Generator Drive
14	234-0370	1	Grille, Generator Air Inlet
15	234-0361	1	Wrapper, Generator End Bell
16	509-0125	1	Seal, "O" Ring - Bearing

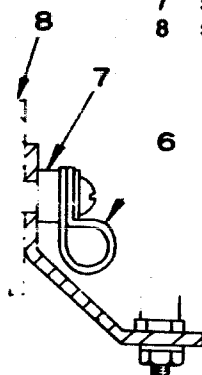
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
17	526-0238	1	Washer, Bearing Retainer
18	800-0513	1	Screw, Bearing Retainer
19	220-1528	1	Stator Assembly, Wound - Exciter
20	232-2102	1	Spacer, Bearing
21	520-0735	4	Stud, End Bell
22	305-0481	2	Spacer, Voltage Regulator Chassis Mounting
23	305-0491	1	Chassis Assembly, Voltage Regulator - (See Separate Group for Components) Used on Spec H and J
24	800-0163	2	Screw, HHC, 3/4-10 x 4
25	850-0079	2	Lockwasher, 3/4
26	526-0123	2	Washer, Flat - 3/4
27	232-1393	1	Hub, Drive
28	515-0211	1	Key, Woodruff
29	338-0521	1	Harness Assembly, Voltage Regulator

* - Refer to factory giving complete Model, Spec and Serial Number from the Onan nameplate.

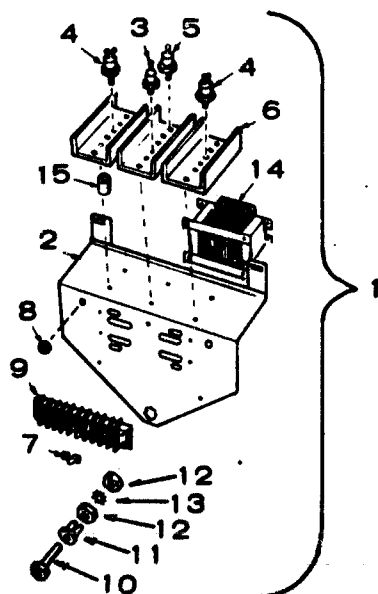
EXCITER ROTOR GROUP



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	358-0016	3	Rectifier, Diode - Positive
2	363-0054	1	Heat Sink, Rectifier - Positive
3	358-0015	3	Rectifier, Diode - Negative
4	363-0055	1	Heat Sink, Rectifier - Negative
5	508-0093	2	Grommet, Rubber
6	332-0050	2	Clamp, Cable
7	508-0124	4	Bushing, Insulating
8	508-0156	4	Washer, Insulating

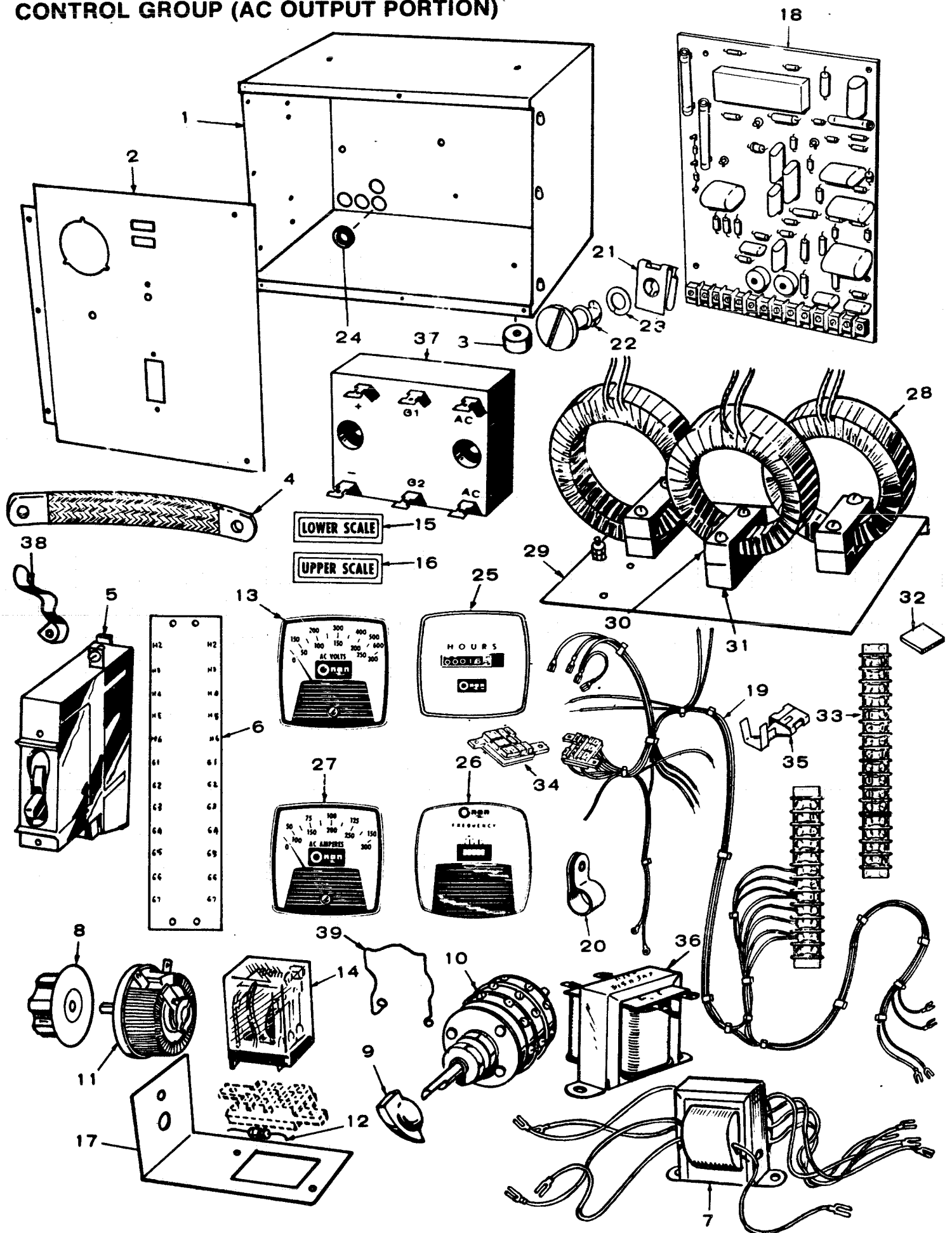


VOLTAGE REGULATOR GROUP - SPEC H & J



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	305-0491	1	Chassis Assembly Voltage Regulator - Complete - Spec H and J
2	305-0482	1	Chassis, Voltage Regulator
3	358-0029	1	Rectifier, Silicon (Avalanche) Negative
4	364-0014	2	Rectifier, Gate Control - Neg.
5	359-0035	2	Rectifier, Silicon (Avalanche) - Negative
6	363-0053	3	Heat Sink, Rectifier
7	332-1043	2	Jumper, Terminal Board
8	508-0002	2	Grommet, Reactor Leads
9	332-1266	1	Block, Terminal
10	150-0723	1	Contact Assembly, Overspeed Switch
11	870-0250	1	Nut, Insulator - Overspeed Switch
12	862-0001	2	Nut, Hex (1/4-20) - Overspeed Switch
13	853-0013	1	Washer, Lock - Overspeed Switch
14	315-0343	1	Reactor Assembly
15	332-1265	6	Insulator, Heat Sink Mounting

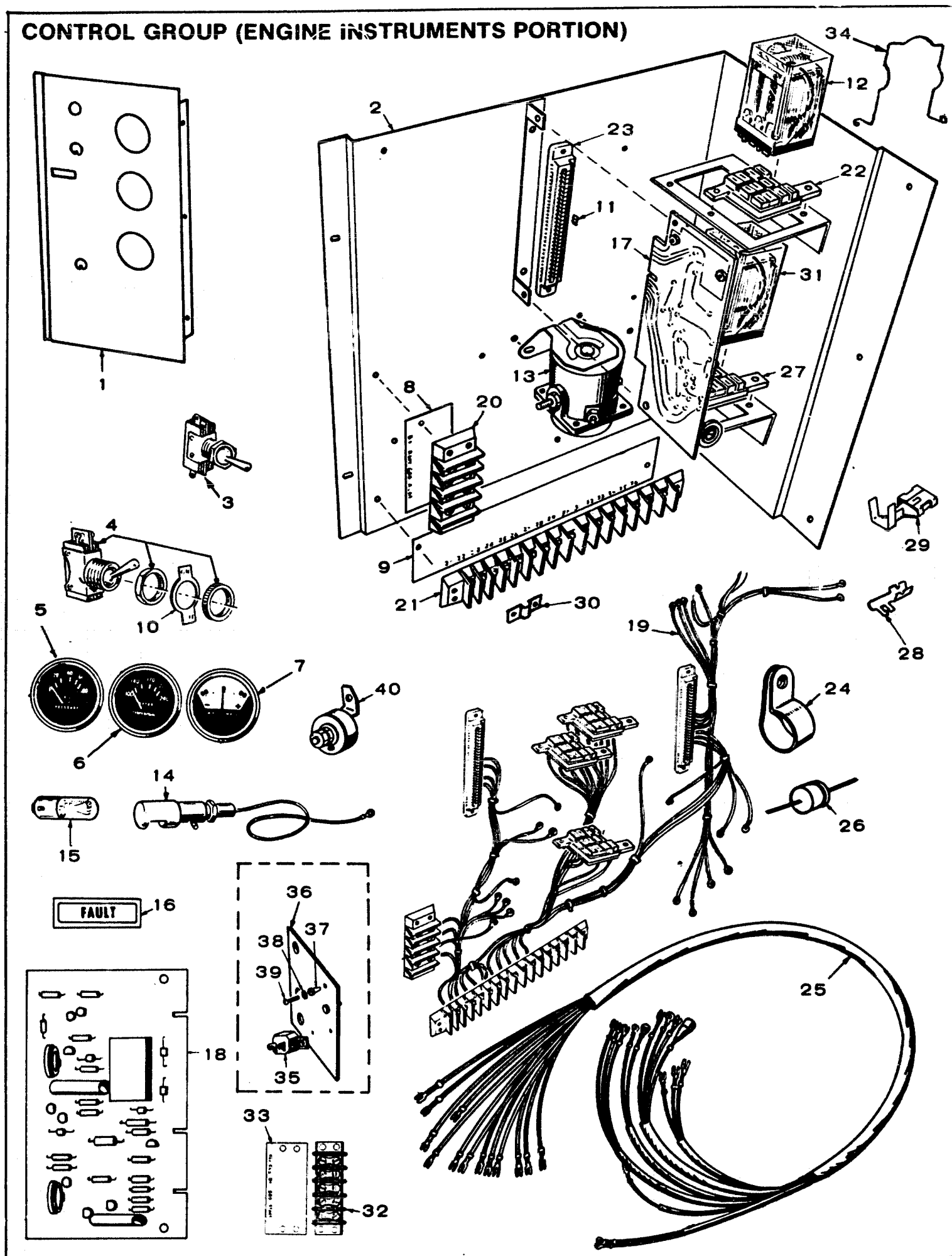
CONTROL GROUP (AC OUTPUT PORTION)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	301-3158	1	Box Only, Control
2	PANEL ONLY, CONTROL		
	301-3342	1	170.0WB-9XR Sets
	301-3170	1	140.0WB-515R and 170.0WB-15R Sets
3	402-0070	4	Rubber, Mounting - Control Box
4	337-0049	1	Strap, Ground
5	320-0431	1	Breaker, Circuit
6	332-1242	1	Strip, Marker
7	315-0342	1	Transformer, Voltage
8	303-0032	1	Knob, Rheostat
9	303-0076	1	Knob, Selector Switch
10	308-0284	1	Switch, Selector
11	303-0170	1	Rheostat
12	350-0556	1	Resistor, 47,000-Ohm, 1/2 Watt - (140.0WB-515R and 170.0WB-15R Sets) - Part of Wiring Harness
13	VOLTMETER		
	302-0779	1	170.0WB-9XR Sets
	302-0718	1	140.0WB-515R and 170.0WB-15R Sets
14	307-1061	1	Relay, Voltage Selector - 140.0WB-515R and 170.0WB-15R Sets
15	322-0130	1	Light, Lower Scale - 140.0WB-515R and 170.0WB-15R Sets
16	322-0131	1	Light, Upper Scale - 140.0WB-515R and 170.0WB-15R Sets
17	301-3244	1	Bracket, Relay Mounting - 140.0WB-515R and 170.0WB-15R Sets
18	332-1268	1	Board Assy., Printed Circuit (See Separate Group for Components)
19	HARNES, WIRING - AC CONTROL		
	338-0571	1	170.0WB-9XR Sets - Spec H & J
	338-0525	1	140.0WB-515R and 170.0WB-15R Sets
	338-0759	1	170.0WB-9XR Sets - Spec L
20	332-0050	2	Clip, Tinnerman

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
21	406-0332	2	Receptacle, Fastener
22	406-0333	2	Stud, Fastener
23	406-0334	2	Washer, Stud Fastener
24	508-0001	4	Grommet
25	METER, RUNNING TIME		
	302-0469	1	50 Hertz Sets
	302-0466	1	60 Hertz Sets
26	METER, FREQUENCY		
	302-0256	1	50 Hertz Sets
	302-0221	1	60 Hertz Sets
27	AMMETER, AC		
	302-0412	1	170.0WB-9XR Sets
	302-0724	1	140.0WB-515R and 170.0WB-15R Sets
28	TRANSFORMER, CURRENT		
	302-0209	3	170.0WB-9XR Sets
	302-0471	3	140.0WB-515R and 170.0WB-15R Sets
29	BRACKET, TRANSFORMER MOUNTING		
	302-0729	1	170.0WB-9XR Sets
	302-0764	1	140.0WB-515R and 170.0WB-15R Sets
30	302-0235	3	Clamp, Transformer Mounting - Upper - 170.0WB-9XR Sets
31	302-0236	3	Clamp, Transformer Mounting Lower - 170.0WB-9XR Sets
32	302-0253	3	Shim, Transformer Mounting - 170.0WB-9XR Sets
33	332-0795	1	Block, Terminal (Part of Wiring Harness)
34	323-0764	1	Socket, Relay (Part of Wiring Harness) - 140.0WB-515R and 170.0WB-15R Sets
35	332-1280	As Req.	Terminal, Crimp
36	315-0384	1	Reactor, Commutator - Begin Spec L
37	305-0524	1	Rectifier Assembly, Bridge - Begin Spec L
38	320-0307	1	Lock, Circuit Breaker - Penn State Units
39	307-1157	1	Spring, Hold-down

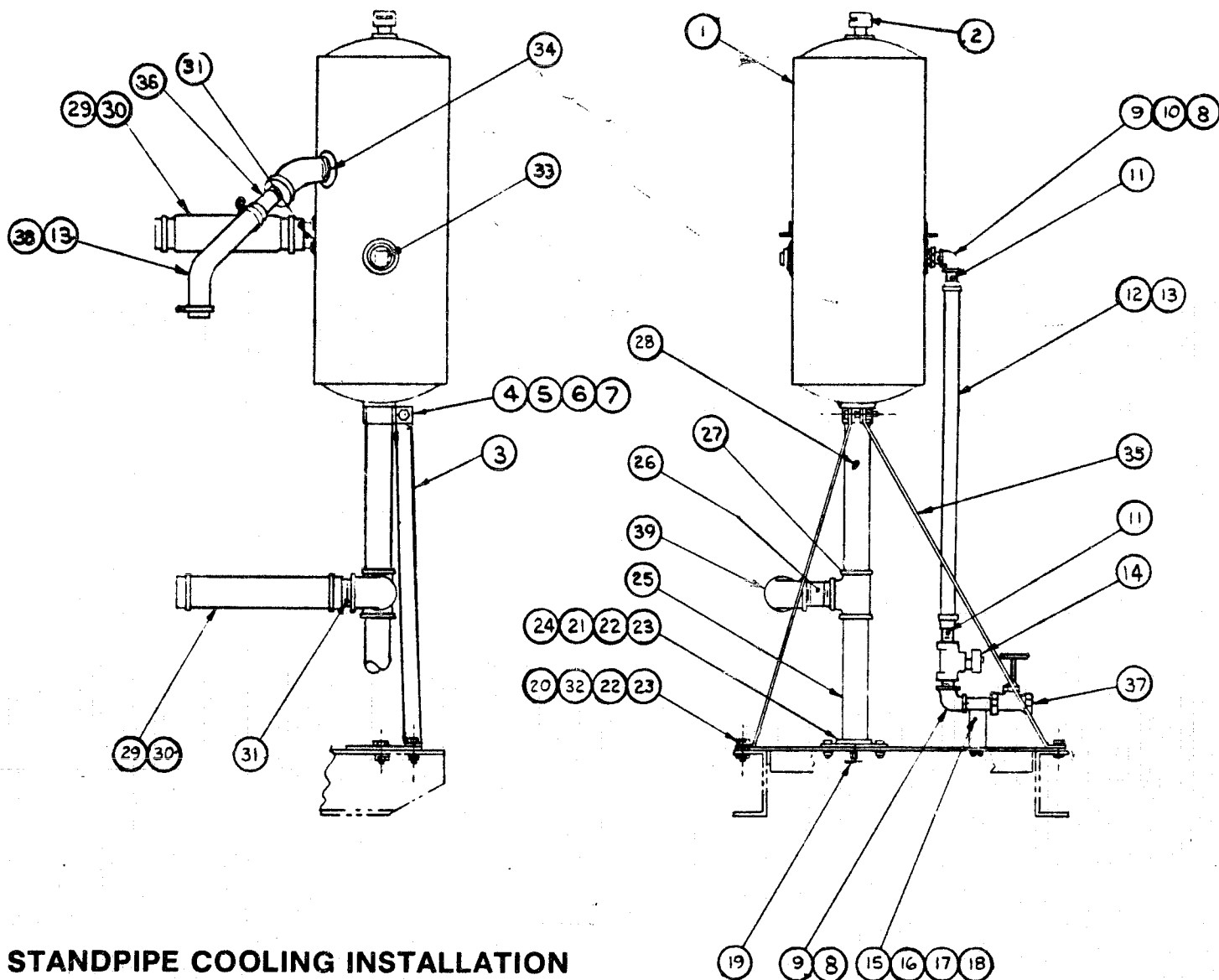
CONTROL GROUP (ENGINE INSTRUMENTS PORTION)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	PANEL ONLY, ENGINE CONTROL		
	301-3165	1	Sets With One Fault Light
	301-3267	1	Sets With Five Fault Lights - Optional
2	301-3253	1	Bracket, Engine Control
3	SWITCH (S.P.D.T.), TOGGLE		
	308-0138	1	Standard Units
	308-0327	1	Penn State Units - Optional
4	308-0002	1	Switch, Panel Light
5	193-0107	1	Gauge, Oil Pressure
6	193-0106	1	Gauge, Water Temperature
7	302-0061	1	Ammeter, Charge (30-0-30)
8	332-1239	1	Strip, Marker (B+, Remote, Ground Alarm)
9	332-1241	1	Strip, Marker (21 through 36)
10	308-0003	1	Plate, Switch (On-Off)
11	332-1276	2	Plug, Keying (Sets With Five Fault Lights Use Quantity of 3)
12	307-1056	2	Relay (1) Start Disconnect, (1) Ignition
13	307-1061	1	Relay, Start Solenoid
14	322-0149	1	Holder, Lamp
15	322-0017	1	Lamp, Panel
16	LAMP, INDICATING		
	322-0129	1	Fault (Standard Sets)
	322-0110	1	Overcrank (Optional)
	322-0123	1	Overspeed (Optional)
	322-0120	1	Low Oil Pressure (Optional)
	322-0121	1	High Engine Temperature (Optional)
	322-0122	1	Low Engine Temperature (Optional)
17	CONTROL, CRANKER		
	300-0751	1	Standard Cranker
	300-0715	1	Cycle Cranker (Optional) - (See Separate Group for Components)
18	MONITOR, ENGINE CONTROL		
	300-0680	1	Sets With One Fault Light - Standard (See Separate Group for Components)
	300-0731	1	Sets With One Fault Light - Penn State Units - Optional (See Separate Group for Components)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0682	1	Sets With Five Fault Lights - Optional (See Separate Group for Components)
19	HARNESS ASSEMBLY, WIRING - CONTROL (Includes Parts Marked*)		
	338-0528	1	Sets With One Fault Light - Standard
	338-0534	1	Sets With Five Fault Lights - Optional
20	332-0537	1	*Block, Terminal - 4 Place
21	332-0795	1	*Block, Terminal - 16 Place
22	323-0765	2	*Socket, Relay - 11 Place
23	332-1271	2	*Housing, Printed Circuit Board Terminal
24	332-0051	1	Clip, Tinnerman
25	338-0603	1	Harness, Wiring - Engine to Control
26	357-0018	1	*Rectifier, Diode
27	323-0764	1	*Socket, Relay - 8 Place
28	332-1269	As Req.	*Terminal, PC Board
29	332-1280	As Req.	*Terminal, Crimp
30	332-1043	1	*Jumper, Terminal - Sets With One Fault Light
31	307-1061	1	Relay, Starter Protection
32	332-0699	1	*Block, Terminal (6 Place) - Sets With Five Fault Lights
33	332-1240	1	Strip, Marker (53 through 58) - Sets With Five Fault Lights
34	307-1157	3	Spring, Relay Hold-down
35	320-0240	1	Circuit Breaker, Starter - 12.5 Amp
36	332-1382	1	Bracket, Terminal Mounting
37	870-0196	1	Nut, Insulator
38	508-0015	1	Washer, Fiber
39	809-0035	1	Screw (#8 x 3/4"), Round Head
40	193-0189	2	Resistor-gauge

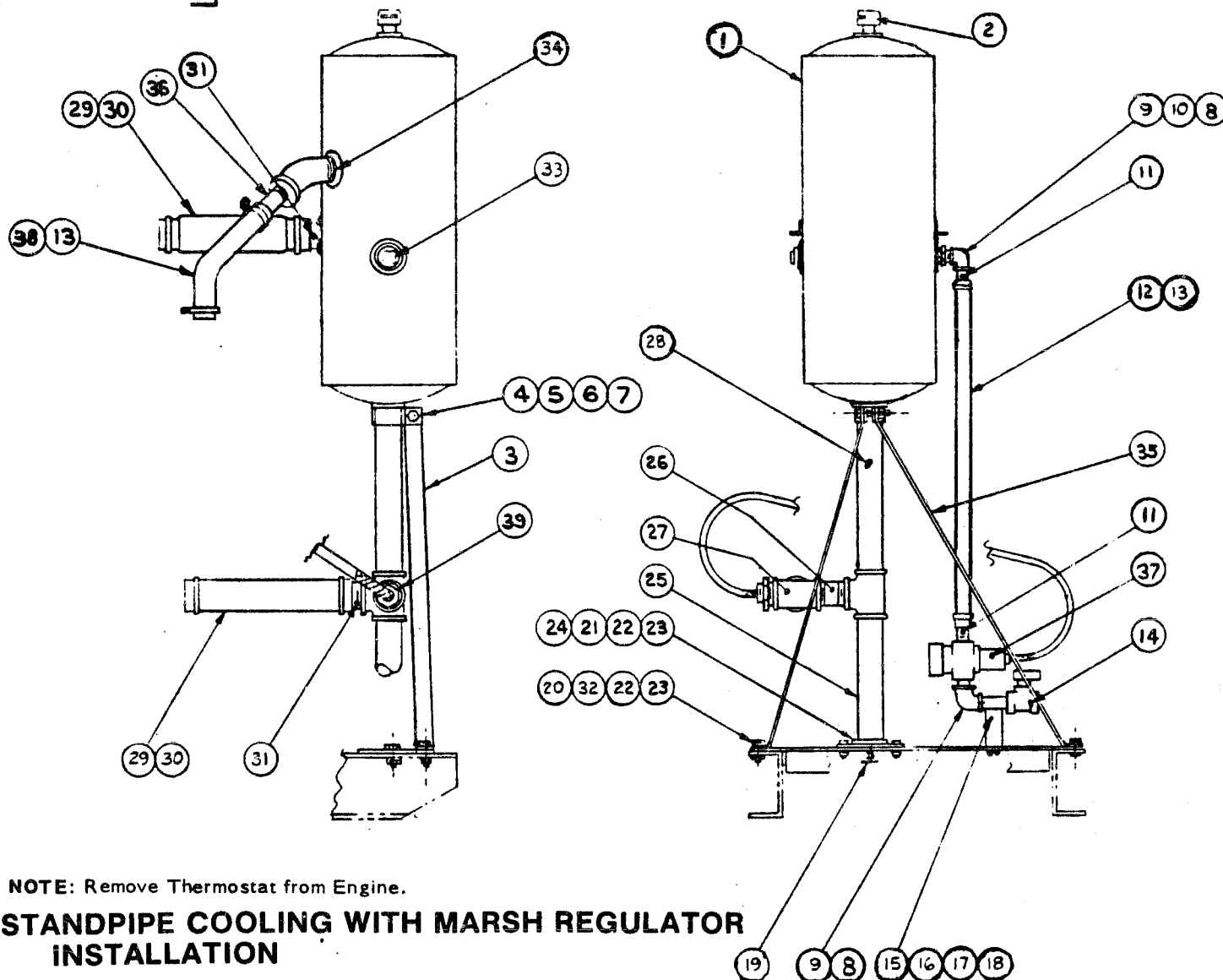
* - Included in Wiring Harness Assembly.



STANDPIPE COOLING INSTALLATION

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	130-0425	1	Standpipe
2	504-0062	1	Valve, Vacuum Relief
3	130-0870	1	Brace, Standpipe
4	130-0871	1	Clamp, Standpipe Mounting
5	800-0051	1	Screw, Cap (3/8-16 x 1-1/4)
6	850-0050	1	Washer, Lock (3/8)
7	862-0003	1	Nut, Hex (3/8-16)
8	505-0004	2	Nipple, Close (1 x 1-1/2")
9	505-0041	2	Elbow, Pipe (1 x 90°)
10	505-0023	1	Bushing, Reducer (1-1/4 x 1)
11	505-0330	2	Nipple, Half (1 x 2")
12		1	Hose, Heater (Order 36" of Bulk Hose #503-0361)
13	503-0189	4	Clamp, Hose
14	307-1135	1	Valve, Solenoid (1")
15	130-0797	1	Bracket and Nipple, Waterline
16	800-0007	2	Screw, Cap (1/4-20 x 1")
17	850-0040	2	Washer, Lock (1/4)
18	862-0001	2	Nut, Hex (1/4-20)
19	504-0006	1	Cock, Drain
20	130-0857	1	Support, Standpipe Mounting

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
21	800-0091	4	Screw, Cap (1/2-13 x 1-1/4")
22	850-0060	8	Washer, Lock (1/2)
23	862-0005	8	Nut, Hex (1/2-13)
24	130-0442	1	Base, Standpipe
25	505-0421	1	Nipple (2 x 8")
26	505-0405	1	Nipple (2 x 5")
27	505-0374	2	Tee, Pipe (2")
28	505-0417	1	Nipple (2 x 21-1/2")
29	503-0631	2	Hose, Radiator
30	503-0354	4	Clamp, Hose
31	505-0380	2	Nipple, Half (2 x 3")
32	800-0093	4	Screw, Cap (1/2-13 x 1-3/4")
33	505-0359	1	Plug, Pipe (1-1/4)
34	505-0333	1	Elbow, Street (1 x 45°)
35	130-0869	1	Brace, Standpipe
36	505-0404	1	Nipple, Half (1 x 7")
37	504-0090	1	Valve, Globe (Lockshield)
38	503-0360	1	Hose, Radiator
39	505-0175	1	Elbow, Pipe (2 x 90°)

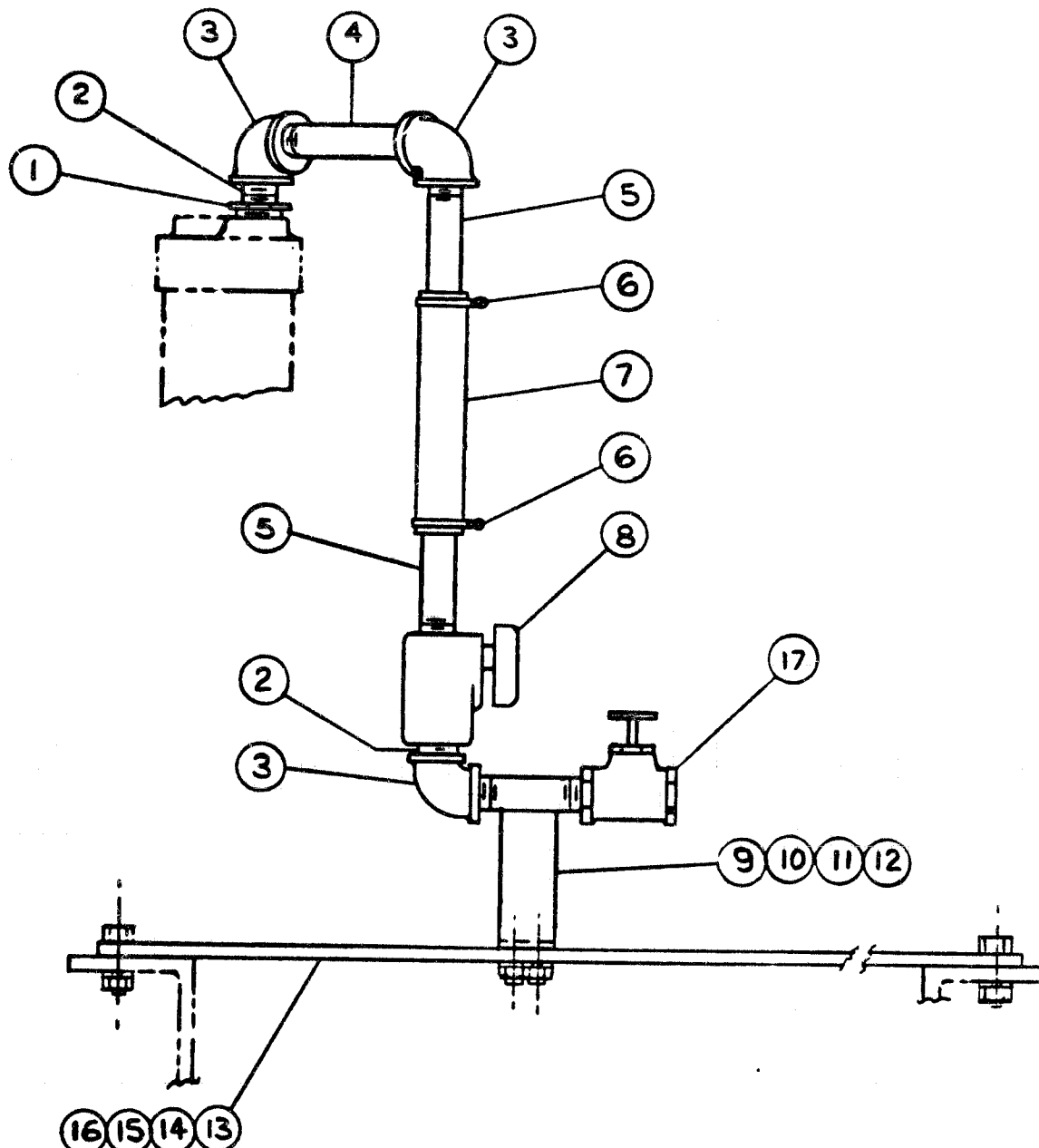


NOTE: Remove Thermostat from Engine.

STANDPIPE COOLING WITH MARSH REGULATOR INSTALLATION

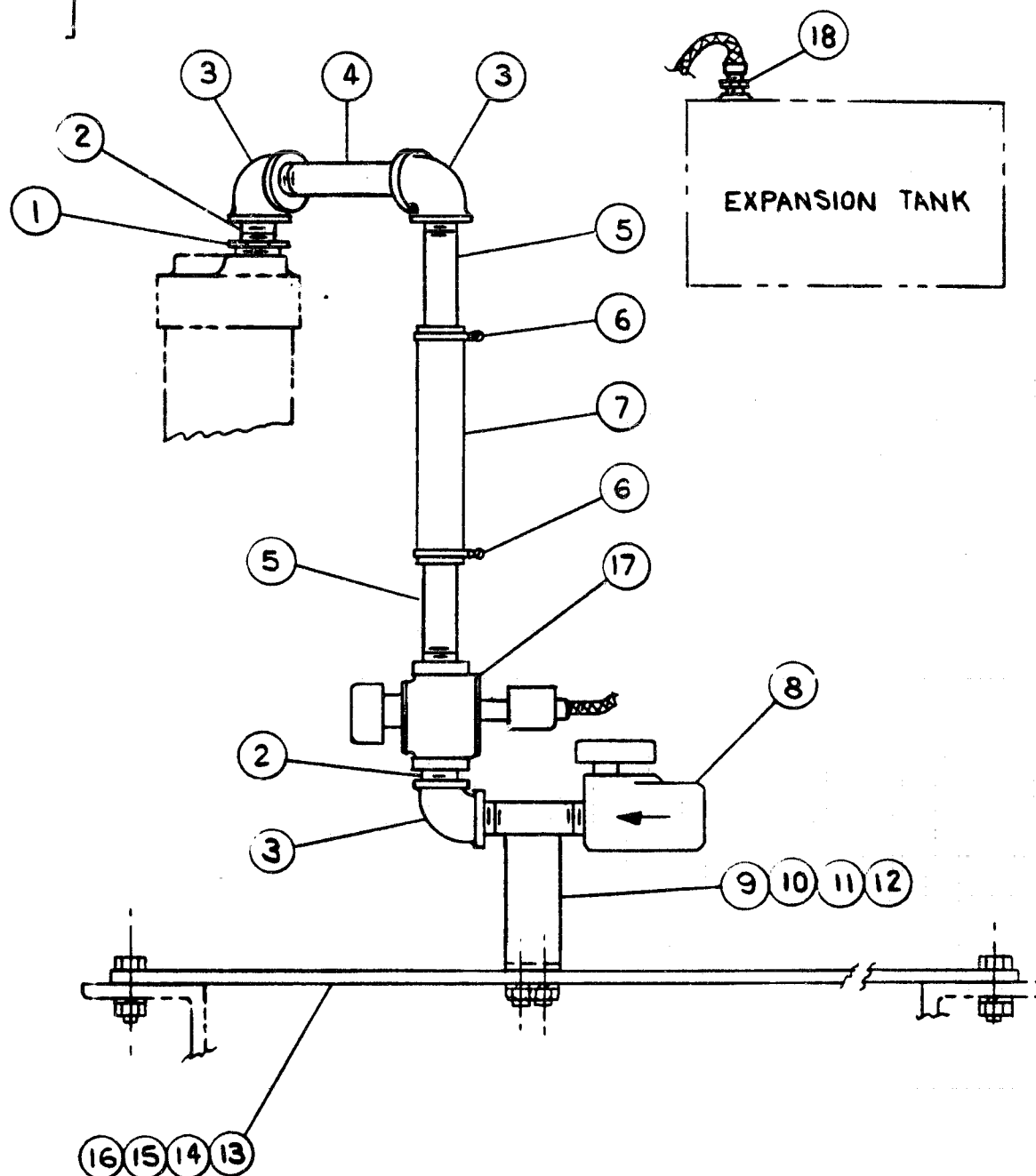
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	130-0425	1	Standpipe
2	504-0062	1	Valve, Vacuum Relief
3	130-0870	1	Brace, Standpipe
4	130-0871	1	Clamp, Standpipe Mounting
5	800-0051	1	Screw, Cap (3/8-16 x 1-1/4)
6	850-0050	1	Washer, Lock (3/8)
7	862-0003	1	Nut, Hex (3/8-16)
8	505-0004	2	Nipple, Close (1 x 1-1/2")
9	505-0041	2	Elbow, Pipe (1 x 90°)
10	505-0023	1	Bushing, Reducer (1-1/4 x 1)
11	505-0330	2	Nipple, Half (1 x 2")
12		1	Hose, Heater (Order 36" of Bulk Hose #503-0361)
13	503-0189	4	Clamp, Hose
14	307-1135	1	Valve, Solenoid (1")
15	130-0797	1	Bracket and Nipple, Water Line
16	800-0007	2	Screw, Cap (1/4-20 x 1")
17	850-0040	2	Washer, Lock (1/4)
18	862-0001	2	Nut, Hex (1/4-20)
19	504-0006	1	Cock, Drain
20	130-0857	1	Support, Standpipe Mounting

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
21	800-0091	4	Screw, Cap (1/2-13 x 1-1/4)
22	850-0060	8	Washer, Lock (1/2)
23	862-0005	8	Nut, Hex (1/2-13)
24	130-0442	1	Base, Standpipe
25	505-0421	1	Nipple (2 x 8")
26	505-0405	1	Nipple (2 x 5")
27	505-0374	2	Tee, Pipe (2")
28	505-0417	1	Nipple (2 x 21-1/2")
29	503-0631	2	Hose, Radiator
30	503-0354	4	Clamp, Hose
31	505-0380	2	Nipple, Half (2 x 3")
32	800-0093	4	Screw, Cap (1/2-13 x 1-3/4")
33	505-0359	1	Plug, Pipe (1-1/4)
34	505-0333	1	Elbow, Street (1 x 45°)
35	130-0869	1	Brace, Standpipe
36	505-0404	1	Nipple, Half (1 x 7")
37	309-0242	1	Valve, Water Temperature Control
38	503-0360	1	Hose, Radiator
39	505-0351	1	Bushing, Reducer (3/4 x 2)



HEAT EXCHANGER INSTALLATION

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	505-0270	1	Bushing, Reducer (2 x 1-1/4)
2	505-0177	2	Nipple, Close (1-1/4)
3	505-0042	3	Elbow, Pipe (1-1/4 x 90°)
4	505-0264	1	Nipple, Pipe (1-1/4 x 5-1/2")
5	505-0393	2	Nipple, Half (1-1/4 x 9")
6	503-0465	2	Clamp, Hose
7	503-0465	1	Hose (Order 24" of Bulk Hose #503-0359)
8	307-0839	1	Valve, Solenoid
9	110-1168	1	Bracket and Nipple Assembly
10	800-0007	2	Screw, Cap (1/4-20 x 1")
11	850-0040	2	Washer, Lock (1/4)
12	862-0001	2	Nut, Hex (1/4-20)
13	130-0875	1	Plate, Solenoid and Regulator Mounting
14	800-0092	2	Screw, Cap (1/2-13 x 1-1/2)
15	850-0060	2	Washer, Lock (1/2)
16	862-0005	2	Nut, Hex (1/2-13)
17	504-0051	1	Valve, Globe

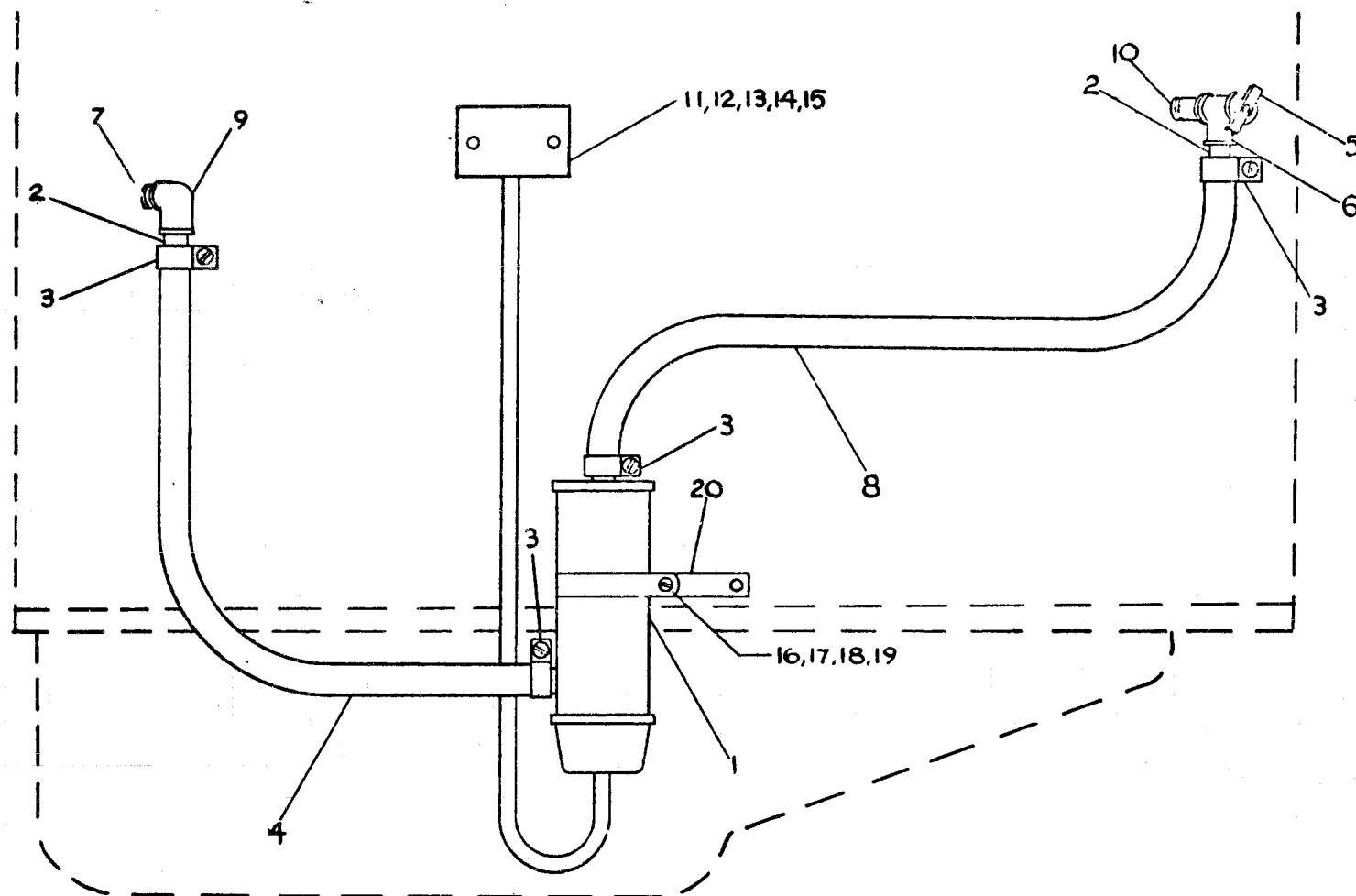


NOTE: Remove Thermostat from Engine.

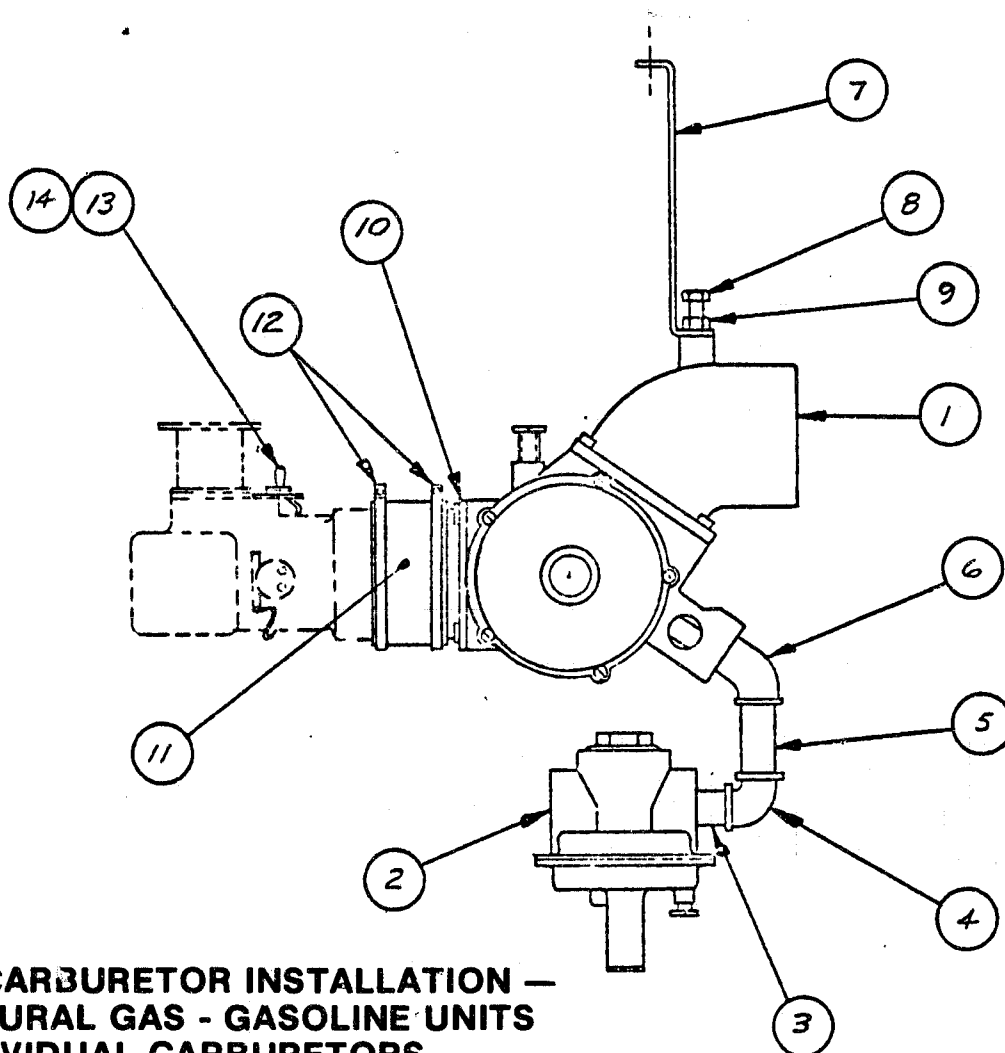
HEAT EXCHANGER WITH MARSH REGULATOR INSTALLATION

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	505-0270	1	Bushing, Reducer (2 x 1-1/4)	10	800-0007	2	Screw, Cap (1/4-20 x 1")
2	505-0177	2	Nipple, Close (1-1/4)	11	850-0040	2	Washer, Lock (1/4)
3	505-0042	3	Elbow, Pipe (1-1/4 x 90°)	12	862-0001	2	Nut, Hex (1/4-20)
4	505-0264	1	Nipple, Pipe (1-1/4 x 5-1/2")	13	130-0875	1	Plate, Solenoid and Regulator Mounting
5	505-0393	2	Nipple, Half (1-1/4 x 9")	14	800-0092	2	Screw, Cap (1/2-13 x 1-1/2)
6	503-0465	2	Clamp, Hose	15	850-0060	2	Washer, Lock (1/2)
7		1	Hose (Order 24" of Bulk Hose #503-0359)	16	862-0005	2	Nut, Hex (1/2-13)
8	307-0839	1	Valve, Solenoid	17	309-0243	1	Valve, Water Temperature Control
9	110-1168	1	Bracket and Nipple Assembly	18	505-0289	1	Bushing, Reducer (1-1/2 x 3/4)

WATER JACKET HEATER INSTALLATION — 120 VOLT



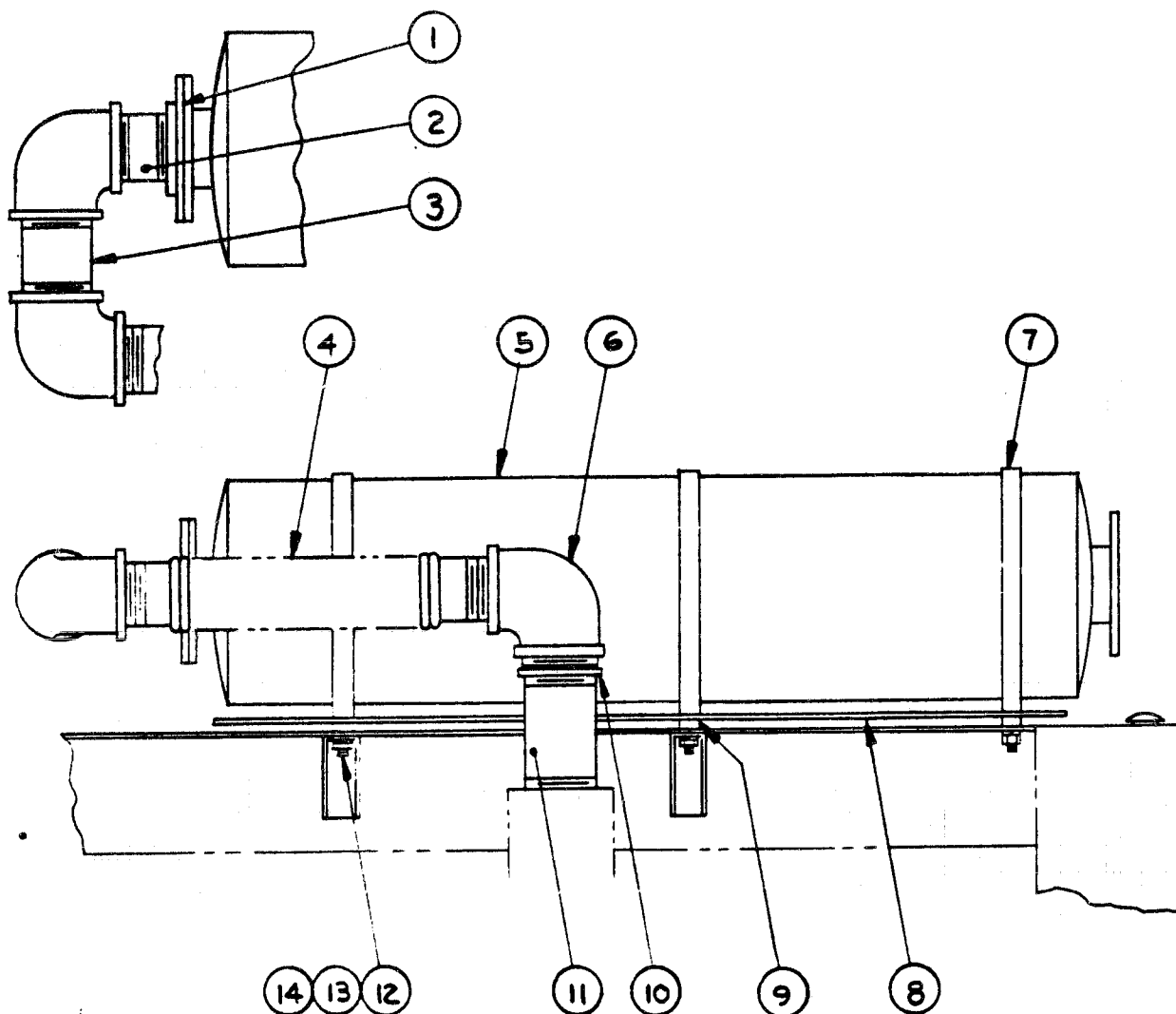
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	333-0053	1	Heater (2000 Watt, 120 Volt)
2	505-0135	2	Nipple (3/8 x 1-1/2"), Half
3	503-0183	4	Clamp, Hose
4	503-0169	1	Hose (27" of Bulk Hose #503-0386)
5	504-0028	1	Cock (3/8"), Drain
6	505-0060	1	Tee (3/8"), Pipe
7	505-0101	2	Nipple (3/8 x 1"), Close
8	503-0146	1	Hose (32" of Bulk Hose #503-0386)
9	505-0120	1	Elbow, Street (3/8 x 90°)
10	505-0076	1	Nipple (3/8 x 3")
11	812-0075	2	Screw, RH (8-32 x 1/4)
12	850-0025	2	Washer (#8), Lock
13	309-0106	1	Thermostat
14	333-0012	1	Box, Thermostat
15	333-0013	1	Cover, Thermostat Box
16	800-0031	1	Screw (5/16-18 x 1-1/2")
17	526-0115	2	Washer (5/16")
18	856-0008	2	Washer (5/16"), Shakeproof
19	862-0075	1	Nut (5/16-18)
20	130-0755	1	Bracket



**GAS CARBURETOR INSTALLATION —
NATURAL GAS - GASOLINE UNITS
INDIVIDUAL CARBURETORS
BEGIN SPEC J**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	148-0721	1	†Carburetor, Gas
2	148-0596	1	Regulator, Gas
3	505-0177	1	Nipple, Close - 1-1/4"
4	505-0042	1	Elbow, 90° - 1-1/4"
5	505-0258	1	Nipple, 1-1/4-3"
6	505-0362	1	Elbow, 45° - 1-1/4"
7	148-0726	1	Bracket
8	800-0092	1	Screw, HHC, 1/2"
9	862-0016	1	Nut, Hex - 1/2"
10	148-0724	1	Adapter
11	503-0659	1	Hose, Adapter
12	503-0621	2	Clamp, Hose
13	308-0005	1	Switch, Toggle
14	308-0150	1	Plate, Switch

† - For Components, contact your nearest Impco Dealer
or Impco Division, 16916 Gridley Place, Cevitos,
California, 46011.



EXHAUST MUFFLER INSTALLATION

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	155-0680	1	Flange Package, Companion
2	505-0745	1	*Nipple (6 x 6-1/2")
3	505-0743	1	*Nipple (6 x 8")
4	155-1160	1	*Tube Assembly, Exhaust
5	155-0651	1	Muffler
6	505-0741	3	*Elbow (6 x 90°)
7	140-0751	3	*Clamp, Air Cleaner
8	155-1165	1	*Shield, Muffler Heat
9	526-0172	6	*Washer, Flat (1/2)
10	505-0695	1	*Bushing, Reducer
11	505-0744	1	*Nipple (5 x 10-3/4")
12	800-0072	6	*Screw, Cap (7/16-14 x 1-1/4")
13	850-0055	6	*Washer, Lock (7/16")
14	862-0004	6	*Nut, Hex (7/16-14)

* - Housed Sets Only.